

Appl. No. 10/055,501
Amdt. dated March 22, 2004
Reply to Office Action of March 4, 2004

REMARKS/ARGUMENTS

Claims 6-11 and 18 stand rejected under 35 USC 112, second paragraph, as being indefinite in reciting “said second mixing stage” when there is insufficient antecedent basis for such a limitation. In response, applicant points out that claim 6 has been amended so as to recite a “second mixing stage” prior to the appearance of “said second mixing stage.” Accordingly, withdrawal of this rejection as to claims 6-10 and 18 is respectfully requested (claim 11 has been cancelled, rendering the rejection moot as to that claim).

Claims 6-11 and 18 stand rejected under 35 USC 102(b) as being anticipated by Klotzer DE 198 033 61.1 (Klotzer), the Examiner reasoning that proper copendency was not achieved between the parent application Serial No. 09/642,390 and PCT/EP99/00286. The rejection is moot as to claim 11, as that claim has been cancelled. In response to the rejection of claims 6-10 and 18, applicant points out that a Petition to Revive PCT/EP99/00286 for purposes of establishing copendency between that international application and Serial No. 09/642,390 has been granted. A copy of the Decision on Petition is enclosed. Accordingly, withdrawal of this anticipation rejection is respectfully requested.

Claim 18 stands rejected under 35 USC 102(b) as being anticipated by Welsh et al. U.S. Patent No. 5,340,844 (Welsh), the Examiner reasoning that Welsh teaches a polystyrene foam made using carbon dioxide and water as blowing agents by use of a tandem extrusion process. The Examiner acknowledges that Welsh does not teach the use of a melt pump in the tandem extrusion apparatus between the second extruder and the extrusion die, but takes the

Appl. No. 10/055,501
Amdt. dated March 22, 2004
Reply to Office Action of March 4, 2004

position that the melt pump would not affect the foam product formed and so this limitation may be ignored in assessing patentability.

In response, applicant points out that claim 18 is dependent from claim 6 and so incorporates all of the same limitations of claim 6, and that claim 6 has now been amended to list specific thermoplastic polymers, which list does not include polystyrene. In addition, claim 6 has been amended to specify that the polymer melt is charged in the absence of a nucleating agent; in this connection, note that Welsh requires the presence of a nucleating agent. See column 3, line 36 (“The addition of a nucleating agent is required....”). In addition, claim 18 has been amended to specify the proportion of open cells, the void fraction, the pore size distribution and an average pore diameter of 0.05 to 30 microns, none of which is disclosed or suggested by Welsh. Likewise new claim 19 recites the same characteristics but with a different average pore diameter range, which is also not disclosed or suggested by Welsh. Without more, it is respectfully submitted that claim 18 and new claim 19 are distinguishable from Welsh.

However, applicant also wishes to point out that there must be some objective and identifiable basis in the record for the Examiner’s position that the limitation of the use of a melt pump between the second extruder and the extension die may be ignored. See *In re Royka*, 490 F2d 981, 180 USPQ 580 (CCPA 1974), holding that “All words in a claim must be considered in judging the patentability of that claim against the prior art.” It is therefore respectfully submitted that the Examiner’s position that a second melt pump would not affect the final product is not in harmony with the law.

Appl. No. 10/055,501
Amdt. dated March 22, 2004
Reply to Office Action of March 4, 2004

Claims 6-7 and 9-10 stand rejected under 35 USC 103(a) as being unpatentable over Welsh in view of Park et al. U.S. Patent No. 5,149,579 (Park '579), the Examiner applying Welsh in the same manner as applied to claim 18, and reasoning that Park '579 teaches a tandem extrusion method that utilizes a melt pump to facilitate the transfer of the polymer melt through a heated extrusion die. The Examiner further reasons that, given the teachings of Park '579 it would have been *prima facie* obvious to reduce the temperature in the second extruder by any amount necessary to optimize the processing of the polymer melt and the cost of heating.

In response, applicant points out that both Welsh and Park '579 require the presence of a nucleating agent. See Welsh at column 3, line 36 and Park '579 at column 4, lines 47-50. All of applicant's claims as amended specify that the foamed porous membrane is formed in the absence of a nucleating agent. Furthermore, applicant respectfully points out that the product obtained by the Park '579 process is fundamentally different than that obtained by applicant's claimed process. Specifically, applicant's foamed porous membrane produced by the claimed process has an open cell content of at least 80%, while that produced by the Park '579 process has an open cell content of from 15.8 to 40%. Accordingly, applicant's claims 6-7 and 9-10 are submitted to be distinguishable and not obvious from the combination of Welsh and Park '579, and withdrawal of this obviousness rejection is respectfully requested.

Claim 8 stands rejected under 35 USC 103(a) as being unpatentable over Welsh in view of Park '579 as applied to claims 6-7 and 9-10, and further in view of Hammel et al. U.S. Patent No. 5,912,279 (Hammel), the Examiner conceding that Welsh and Park '579 do not teach increasing the pressure in the second extruder to greater than 150 bar, but that Hammel teaches a

Appl. No. 10/055,501
Amdt. dated March 22, 2004
Reply to Office Action of March 4, 2004

tandem extrusion process where the polymer melt is heated under pressures of at least 600 psig, that FIGS. 3-6 of Hammel show that higher pressures result in improved dissolution of blowing agents in the resin and that, accordingly, it would have been *prima facie* obvious to elevate the pressure in the second extruder to any pressure necessary to optimize the dissolution of blowing agents in the polymer melt.

In response, in addition to the points of distinction pointed out above in connection with the discussion of Welsh and Park '579, applicant points out that Hammel is concerned with the production of a closed cell polymer foam. In this connection, note that claim 6 as amended specifies that the method is for making an open-celled foamed porous membrane. Note also the discussion in Hammel at column 1, lines 49-53, which points out the art-recognized distinction between closed cell and open-celled polymeric foams. Accordingly, reconsideration of this obviousness rejection is respectfully requested.

Claims 6-7, 10-11 and 18 stand rejected under 35 USC 103(a) as being unpatentable over Park '579 in view of Park U.S. Patent No. 5,567,742 (Park '742), the Examiner applying Park '579 as noted above and reasoning that Park '742 teaches the use of carbon dioxide and water mixtures as blowing agents, and that therefore it would have been *prima facie* obvious to use a mixture of those blowing agents in the Park '579 foaming method.

In response, applicant points out that claim 11 has been cancelled, rendering the rejection of that claim moot. As to claims 6-7, 10, 18 and new claim 19, applicant respectfully points out that the Park '742 process does not result in a polymer foam that has both applicant's claimed small cell sizes and high proportion of open cells. In this connection, note that the

Appl. No. 10/055,501
Amdt. dated March 22, 2004
Reply to Office Action of March 4, 2004

largest cells produced by applicant's claimed process are 200 microns (claim 19), or 0.2 mm, with an open cell content of at least 80%. By way of comparison, the polymer foam of Park '742 having the smallest cell size of 0.27 mm has an open cell content of 42%, or roughly half the at least 80% open cell content claimed by applicant. See Table IVa at column 9 of Park '742. Similarly, when the polymer foam of Park '742 has an open cell content of 83%, the cell size is 1.25 mm, or a little over 6 times the largest cell size claimed by applicant. See Table VIIa at column 15. Accordingly, withdrawal of this obviousness rejection is respectfully solicited.

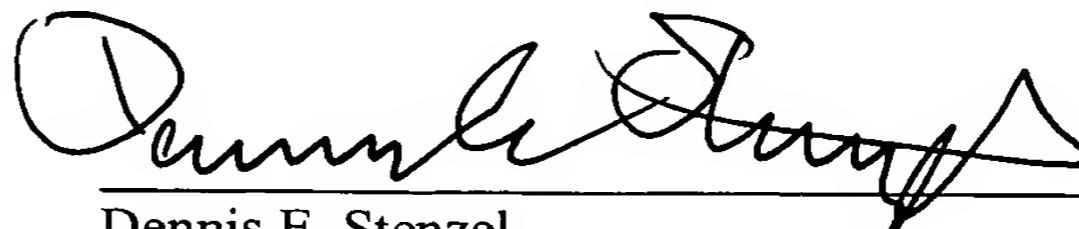
Finally, claim 8 stands rejected under 35 USC 103(a) as being unpatentable over Park '579 in view of Park '742 as applied above, and further in view of Hammel, the Examiner applying Hammel in the same manner noted above and using the same rationale.

In response, applicant again points out that the Hammel process results in the formation of a closed cell foam, which is recognized in the art as fundamentally different than an open-celled foam. Accordingly, this obviousness rejection is also requested to be withdrawn.

For the reasons stated, early and favorable reconsideration is respectfully solicited.

Respectfully submitted,

Chernoff, Vilhauer, McClung & Stenzel, LLP



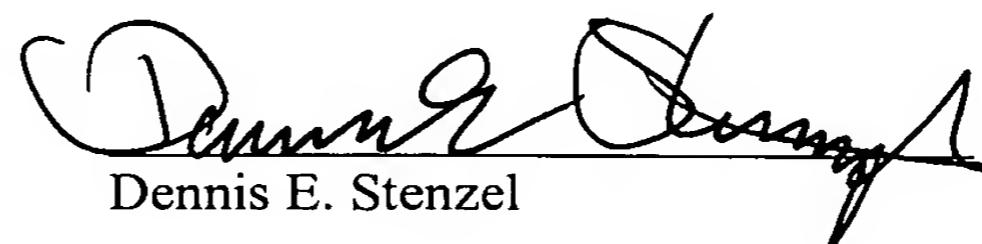
Dennis E. Stenzel
Reg. No. 28,763
Tel No.: (503) 227-5631



Appl. No. 10/055,501
Amdt. dated March 22, 2004
Reply to Office Action of March 4, 2004

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450



Dennis E. Stenzel

Dated: March 22, 2004